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quite certain that the wide range attributed to this species in Gray's *Synoptical Flora* is due to other species being included. With the erection of *P. floribunda* (Gray) Greene and *P. canescens* (Eaton) Greene into species the area covered has also been segregated. But even after the establishment of the two following species some Rocky mountain forms, such as my no. ——, are still left to represent the original species.

PICRADENIA LIGULÆFLORA Aven Nelson, Bull. Torr. Bot. Club **25**: 378. 1898.

This species is proving to be far more common than was at first suspected. As to habitat see notes on the following species.

Picradenia macrantha, n. sp.—Caudex branched, each branch surmounted by a few to several crowns; crowns clothed with the lanate leaf-bases: stems single from each crown, erect, fascicled, sparsely pubescent, somewhat striate, about 15^{cm} high: leaves glabrate, not conspicuously punctate, rather numerous on both crowns and stems, slender petioled, the blade variously parted into linear divisions, most of them pedately trifid, some of the stem leaves pinnately parted or twice trifid, the uppermost sometimes simple: heads large, peduncled, one to five on each stem (generally two or three): involucre shorter than the disk flowers, outer bracts lanceolate, nearly glabrous, united for half their length, 6^{mm} long; inner oblong, acute, scarious margined: rays 6–10, chrome yellow, the ligule 15–18^{mm} long and one third as broad: pappus scales 5–7, lanceolate, shorter than the corolla.

Allied to *P. ligulæflora*, from which its larger size, conspicuous rays, longer peduncles, fewer and less resinous heads serve to separate it. The habitat of this is open, stony slopes in the mountains or hills, while *P. ligulæflora* occurs on dry, clayey, alkaline ridges or flats on the open plains. Type number 4830, Fort Steele, June 18, 1898. What seems to be the same thing is no. 1688, Centennial hills, Aug., 1895; also South Park, Colo., 1878, by Marcus E. Jones.—AVEN NELSON, *University of Wyoming.*

PYCNANTHEMUM VERTICILLATUM, A MISINTERPRETED MINT.

MR. W. W. EGGLESTON has called my attention to a Pycnanthemum, abundant about Rutland, Vermont, which has been placed by recent botanists with both *P. muticum* Pers. and *P. Torreyi* Benth., but appears different from either of those species. In its habit the plant matches the original plate published by Michaux[1] with his description of *Brachystemum verticillatum.* Fortunately a portion of Michaux's type specimen is preserved in the Gray Herbarium, and a careful comparison with that leaves no doubt that Mr. Eggleston's plant is the same. Another Vermont specimen collected by Robbins, and a number of specimens from more southern states possess the same characters as the Michaux plant, and with it represent a species fairly distinct from either *P. muticum* or *P. Torreyi.*

Brachystemum verticillatum was described by Michaux from the mountains of Pennsylvania and Carolina. It was soon transferred to Pycnanthemum by Persoon,[2] who merely accepted Michaux's description without comment. Pursh in his *Flora*, took up the name, modifying the description slightly, but Pursh's plant is said by Bentham, in his monograph,[3] to be the same as *Pycnanthemum aristatum* Michx. In the same work[4] Bentham placed *P. verticillatum* under *P. lanceolatum* Pursh ; but subsequently, in De Candolle's *Prodromus*,[5] he reinstated it as a doubtful species. In the *Synoptical Flora* Dr. Gray treated the plant as a form of *P. muticum* Pers.

In 1891 Otto Kuntze[6] took up the obsolete[7] generic name *Koellia* Moench,[8] and transferred to it Michaux's *Brachystemum verticillatum*, though from his statement it is apparent that he meant *Brachystemum muticum*, and was merely following Dr. Gray in regarding that and *B. verticillatum* as the same. In 1894, in their list of the plants of southwestern Virginia, Dr. Small and Miss Vail treated the plants as different species, Dr. Britton[9] there transferring *Brachystemum muticum* Michx. to Koellia. *K. Torreyi* Kuntze (*Pycnanthemum Torreyi* Benth.) was also then recognized as a distinct species. In the *Botan-*

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[1] MICHX., Fl. **2** : 6. *pl. 31.*

[2] PERS. Syn. **2** : 128.

[3] BENTH. Lab. 328.

[4] BENTH. *l. c.* 330.

[5] DC. Prodr. **12** : 190.

[6] O. K. Rev. Gen. **2** : 520.

[7] There is little reason to suppose that the name *Koellia* will be generally accepted among botanists. Though that name is printed instead of Pycnanthemum in Engler and Prantl's *Natürlichen Pflanzenfamilien*, Professor Urban of Berlin writes that, not having been used within fifty years of the time of its original publication, it must be rejected by the "Berlin rule"; and that only through an unfortunate oversight was Pycnanthemum not taken up in its stead in the preparation of the *Supplement* to Engler and Prantl's work.

[8] MOENCH Meth. 407.

[9] BRITTON in Small and Vail, Mem. Torr. Bot. Cl. **4** : 145.

ical Club Check List,[10] however, *P. Torreyi* Benth. is reduced to *K. verticillata*. Thus within three years this plant, which was quite obscure to the great monographer of the Labiatæ, under the inspiring influence of a resuscitated generic name was combined with at least two other species: Otto Kuntze, following Dr. Gray, considered the plant a form of *Pycnanthemum muticum*; then it was treated as a species distinct from both *P. muticum* and *P. Torreyi;* then during the same year it was united with *P. Torreyi.*

As stated above, a study of the type of *Brachystemum verticillatum* Michx. shows that plant to be fairly distinct from either his *B. muticum* or the later *Pycnanthemum Torreyi* Benth. The following description and notes may help to distinguish this plant, and show the points of similarity and of difference between it and those with which it has been associated.

PYCNANTHEMUM VERTICILLATUM Pers.—Stem shortly and rather closely pubescent especially above, the branches loosely subcorymbose: leaves ovate-lanceolate or lanceolate, entire or slightly toothed, subsessile, mostly glabrous; the reduced upper ones subtending the rather dense terminal or verticillastrate glomerules, densely short-pubescent: bracts of the glomerules ovate-lanceolate with subulate tips, more or less pubescent on the backs, and with ciliate margins: calyx 5.5^{mm} long, with the 5 hispid lance-subulate teeth about equal: corolla 7 or 8^{mm} long, the upper lip short-oblong or obovate, the lower with the oblong middle lobe twice exceeding the lateral ones: stamens included, scarcely 1^{mm} long.—Syn. **2**: 128; Benth. in DC. Prodr. **12**: 190; Gray, Am. Jour. Sc. **42**: 47. *P. lanceolatum* Benth. Lab. 330, in part, not Pursh. *P. muticum* Gray, Syn. Fl. **2**: 355, in part, not Pers. *Brachystemum verticillatum* Michx. Fl. **2**: 6. *pl. 31. Koellia verticillata* Kuntze, Rev. Gen. **2**: 520 (as to synonym only); Small and Vail, Mem. Torr. Bot. Cl. **4**: 146 (at least as to Farmer Mt. specimen; but not as to note, which apparently refers to *Pycnanthemum clinopodioides* Gray); Britton, Mem. Torr. Bot. Cl. **5**: 280 (excluding syn. *Pycnanthemum Torreyi* Benth.).—Specimens examined: Pennsylvania (*Michaux*); Colchester, Vermont (*Robbins*); Rutland, Royalton and Clarendon Springs, Vermont (*W. W. Eggleston*); Billerica, Massachusetts (*C. W. Jenks* and *C. W. Swan*); Dedham, Massachusetts (*Miss Alice Browne*); Providence, Rhode Island (*George Thurber*); New

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[10] Mem. Torr. Bot. Cl. **5**: 280.

York (*J. Carey*); Easton, Pennsylvania (*T. C. Porter*); Farmer Mt., Carroll co., Virginia (*John K. Small*).

Habitally *Pycnanthemum verticillatum* should rarely be confused with either *P. muticum* or *P. Torreyi*. *P. muticum* has broader ovate-serrate leaves, the upper distinctly whitened; the bracts of the glomerules are linear or lance-attenuate; and the long stamens are generally much exserted. Though in foliage *P. verticillatum* is approached by *P. muticum*, var. *pilosum* Gray, that form is readily distinguished by its characteristic pubescence and bracts.

From the somewhat similar *P. lanceolatum*, to which Bentham once referred it, *P. verticillatum* is distinguished by its broader leaves, the upper ones pubescent; by its more open inflorescence; by the longer more acuminate and less pubescent bracts of the glomerule; and by the sharper calyx-teeth and smaller corolla.

Some forms of *Pycnanthemum Torreyi* approach *P. verticillatum*, but usually that species may be readily told by its thinner narrowly lanceolate leaves, distinctly tapering at the base, the upper mostly glabrous; and by the narrower bracts of the glomerule. The stamens of the two plants present a striking difference. In *P. Torreyi* they are long-exserted, equaling the upper lip of the corolla; while in *P. verticillatum* they are scarcely 1^{mm} long, and included within the throat of the corolla. It is possible that this is a case of heterostyly, which is rarely observed in *P. lanceolatum*, and that the two plants should be considered extreme forms of one species. From the facts, however, that this floral character, in all the specimens examined, is accompanied by definite characters of pubescence, leaf, and bracts; that *P. verticillatum* extends much further north than the narrow leaved *P. Torreyi*; and that, in one point or another, *P. verticillatum* approaches equally near to *P. lanceolatum*, *P. muticum*, and *P. Torreyi*, it seems more reasonable to treat it as a species. The specific characters in the genus Pycnanthemum are not so fixed as would be convenient for arbitrary diagnoses; but as species go in the group, *P. lanceolatum* and *P. linifolium*, *P. muticum* and *P. incanum*, for example, *P. verticillatum* seems worthy of recognition.—M. L. FERNALD, *Gray Herbarium, Cambridge, Mass.*